

ABSTRACT OF THE DISCLOSURE

Disclosed is a manufacturing method of an integrated capacitor including: forming a hole in a semiconductor substrate; 5 depositing a dielectric film on an inner face of the formed hole; heat-treating the deposited dielectric film; depositing a silicon film on the dielectric film; embedding a resist film in the hole except an upper portion of the inner face of the hole on which the dielectric film and the silicon film are deposited; etching the 10 silicon film on the heat-treated dielectric film with the embedded resist film as a mask; removing the resist film; removing the heat-treated dielectric film by etching with the silicon film remaining after the etching as a mask; and embedding an electrode material in the hole having the dielectric film remaining after the 15 removal by etching, and the integrated capacitor.